

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 10-243372

(43)Date of publication of application : 11.09.1998

(51)Int.Cl.

H04N 7/16  
H04H 1/00  
H04H 1/08  
H04L 12/18

(21)Application number : 09-042201

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(22)Date of filing : 26.02.1997

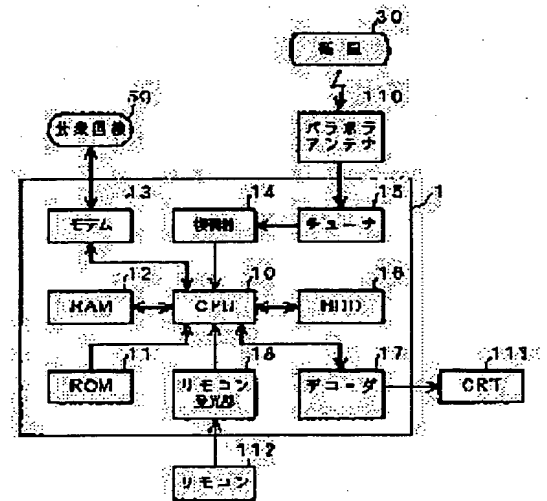
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(54) METHOD, SYSTEM FOR TRANSMITTING INFORMATION, HOST DEVICE AND TERMINAL EQUIPMENT TO BE USED FOR THE SAME

(57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a system with which a reception error on the side of a terminal can be suitablely dealt with in data transmission in a broadcasting form.

**SOLUTION:** When the existence of an reception error is judged in the case of receiving information for the unit of a frame transmitted from a host device 1, a CPU 10 in terminal equipment 1 stores the serial number of that frame in a RAM 12, inputs dummy information into the frame having the reception error and stores it in an HDD 16. Afterwards, the host device is connected through a modem 13 and a public line 50 and reception error information specifying the serial number is transmitted layer. Afterwards, the information corresponding to the part of the reception error is received through the public line 50 and the modem 13 and overwritten on the relevant frame.



## LEGAL STATUS

[Date of request for examination]

29.03.2000

[Date of sending the examiner's decision of rejection]

03.06.2003

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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## CLAIMS

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### [Claim(s)]

[Claim 1] In the information transmission system connected through the broadcast means in which the simultaneous transmission of host equipment and a terminal unit is possible to many and unspecified persons, and the means of communications in which two-way communication is possible It is the approach of transmitting information to a terminal unit from said host equipment. With said host equipment In said terminal unit which transmitted to said terminal unit through said broadcast means after dividing said information which should be transmitted per fixed-length or variable-length frame, and received the transmitted information While memorizing the information received where predetermined false information is inputted into the frame with which the error was detected in said frame unit and the error was detected Transmit the identification information of a frame by which said error was detected to said host equipment through said means of communications, and the information corresponding to the frame concerned is required as transmitting again. It is the information-transmission approach characterized by transmitting again the information corresponding to the frame with which said error was detected through said means of communications to the terminal unit with which the carrier beam aforementioned host equipment corresponds the resending demand.

[Claim 2] It connects through the broadcast means in which the simultaneous transmission of host equipment and a terminal unit is possible to many and unspecified persons, and the means of communications in which two-way communication is possible. It is an information transmission system for transmitting information to a terminal unit from said host equipment. Said host equipment An information-sharing means to divide said information which should be transmitted per fixed-length or variable-length frame, It has the 1st transmitting means which transmits the information divided by this information-sharing means to said terminal unit through said broadcast means. On the other hand, said terminal unit The 1st receiving means which receives the information transmitted through said broadcast means from said host equipment, this — with an error detection means to detect an error in said frame unit out of the information received with the 1st receiving means A false information input means to input predetermined false information into the frame by which the error was detected with this error detection means, An information storage means to memorize said received information in the condition of having been inputted into false information with said false information input means, The identification information of a frame by which the error was detected with said error detection means is transmitted to said host equipment through said means of communications. It has a resending demand means to require the information corresponding to the frame concerned as transmitting again. Further said host equipment It has the 2nd transmitting means which transmits the information on said notified frame to the terminal unit which corresponds a resending demand to a carrier beam case again through said means of communications from said terminal unit. Said terminal unit The information transmission system characterized by having the 2nd receiving means which receives the information on the frame resent from host equipment by the 2nd transmitting means.

[Claim 3] It is the information transmission system characterized by having a resending information overwrite means to overwrite the information on a frame that said 2nd receiving means received said terminal unit further in the information transmission system according to claim 2 at the applicable frame inputted into said false information.

[Claim 4] It connects with a terminal unit at many and unspecified persons through the broadcast means in which simultaneous transmission is possible, and the means of communications in which two-way communication is possible. An information-sharing means to be host equipment which can transmit information in the terminal unit concerned, and to divide said information which should be transmitted per fixed-length or variable-length frame, The 1st transmitting means which transmits the information divided by this information-sharing means to said terminal unit through said broadcast means, Host equipment

to the terminal unit which corresponds the resending demand which specified the frame which should be resent from said terminal unit to a carrier beam case again through said means of communications.

[Claim 5] It connects with host equipment at many and unspecified persons through the broadcast means in which simultaneous transmission is possible, and the means of communications in which two-way communication is possible. The 1st receiving means which receives the information which is the terminal unit which can receive the information transmitted from said host equipment, was divided per fixed-length or variable-length frame, and was transmitted through said broadcast means from said host equipment, this — with an error detection means to detect an error in said frame unit out of the information received with the 1st receiving means A false information input means to input predetermined false information into the frame by which the error was detected with this error detection means, An information storage means to memorize said received information in the condition of having been inputted into false information with said false information input means, A resending demand means to require that the identification information of a frame by which the error was detected with said error detection means should be transmitted to said host equipment through said means of communications, and the information corresponding to the frame concerned should be transmitted again, The terminal unit characterized by having the 2nd receiving means which receives the information transmitted through said means of communications from said said host equipment.

[Claim 6] The terminal unit characterized by having a resending information overwrite means to overwrite further the information on the frame received with said 2nd receiving means in a terminal unit according to claim 5 at the applicable frame inputted into said false information.

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[Translation done.]

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention is used for the approach and system which transmit information to a terminal unit from host equipment, and its system, and relates to effective host equipment and an effective terminal unit.

[0002]

[Description of the Prior Art] Conventionally, it set to the information distribution system which distributed the information for service provisions required for the service provision performed in a terminal unit from host equipment, and was connected by the communication line in which the information transmission of both directions [ terminal unit / host equipment and ], such as the telephone line, is possible, and information was transmitted from both sides through this communication line. From host equipment, information for service provisions mentioned above was distributed (download), and predetermined information, such as operation information, was uploaded from the terminal unit to host equipment.

[0003] However, in an information distribution system by which the new information for service provisions is distributed at comparatively short spacing, since the time amount concerning information distribution became long and communication link cost would also increase the more the more the number of the terminal units belonging to a system increases, desire of the cost reduction as whole shortening and the whole system of distribution time amount was carried out. For example, like the so-called online karaoke system, when the information on a new song needs to be distributed to each terminal unit every several days, the count distributed from host equipment increases dramatically, and especially desire is carried out.

[0004] On the other hand, although the information transmission by the broadcast type for example, using a communication link/broadcasting satellite occurs, since this has big channel capacity and can transmit information simultaneously to two or more receiving sets, it is desirable to above-mentioned distribution time amount compaction. However, when the information transmission by such broadcast type is adopted, there is also a demerit on account of [ which is called the simultaneous transmission to wide range many and unspecified persons "broadcast" ] a property. For example, although it will transmit again if an informational reception error occurs with a certain terminal unit, even when only the part of a series of information has a reception error with one terminal unit, all a series of information will be again transmitted by the broadcast formula.

[0005] In respect of the time amount which one transmission takes, or cost, information transmission of a broadcast type Since there is not necessarily a merit [ the information using the communication line mentioned above / especially ], for example, it ends with one transmission also to 1000 terminal units, When transmitting to each terminal unit like [ at the time of using a communication line ] that is, I hear that there is a merit as the whole system compared with 1000 transmitting processings being need, and it is. Therefore, the demerit distribution time amount and in respect of cost increases conversely as the count of transmission will increase if all a series of information will be again transmitted by the broadcast formula even when only the part of a series of information has a reception error in reverse with one terminal unit.

[0006] This invention aims at offering the host equipment and the terminal unit which are used for the system and this system for realizing the information-transmission approach for realizing appropriately management when there is a reception error in a terminal unit, and its transmission approach, having [ are made in order to solve the trouble mentioned above, and ] an advantage of the simultaneous transmission of the mass information by the broadcast type.

[0007]

[The means for solving a technical problem and an effect of the invention] The information-transmission approach of this invention made in order to attain the above-mentioned object In the information

host equipment and a terminal unit is possible to many and unspecified persons, and the means of communications in which two-way communication is possible so that it may indicate to claim 1 It is the approach of transmitting information to a terminal unit from host equipment. With host equipment In the terminal unit which transmitted to the terminal unit through the broadcast means after dividing the information which should be transmitted per fixed-length or variable-length frame, and received the transmitted information While memorizing the information received where predetermined false information is inputted into the frame with which the error was detected per frame and the error was detected The identification information of a frame by which the error was detected is transmitted to host equipment through means of communications, and the information corresponding to the frame concerned is required as transmitting again. The resending demand carrier beam host equipment According to this information-transmission approach characterized by transmitting again the information corresponding to the frame with which the error was detected through means of communications to the corresponding terminal unit After dividing the information which host equipment should transmit per fixed-length or variable-length frame, it transmits to a terminal unit through the broadcast means in which simultaneous transmission is possible at many and unspecified persons. And the terminal unit which received the transmitted information memorizes the information received where predetermined false information is inputted into the frame with which the error was detected per frame and the error was detected. A terminal unit is required as transmitting the identification information of a frame by which the error was detected to host equipment through the means of communications in which two-way communication is possible, and transmitting the information corresponding to the frame concerned again with it. The information corresponding to the frame with which the error was detected is again transmitted to the terminal unit with which carrier beam host equipment corresponds the resending demand from the terminal unit through means of communications.

[0008] Thus, since the transmission which minds a broadcast means first is used when transmitting information from host equipment to a terminal unit, compared with the case where information is transmitted according to an individual to all terminal units, the advantage of the simultaneous transmission of the mass information by the broadcast type can be acquired. Therefore, it is dramatically effective when one host equipment needs to transmit information to many terminal units especially.

[0009] However, the demerit distribution time amount and in respect of cost increases conversely as the count of transmission will increase, if in the information transmission by the broadcast type it transmits with a broadcast means again even when only the part of a series of information has a reception error with one terminal unit for the property of the simultaneous transmission to wide range many and unspecified persons "broadcast", as mentioned above.

[0010] This transmission approach is effective also about the retransmission of message at the time of such reception error generating. That is, the terminal unit which received the information which the information which host equipment should transmit is divided per fixed-length or variable-length frame, and was transmitted with the broadcast means is required as transmitting the identification information of a frame which detects an error per frame and by which the error was detected to host equipment through means of communications, and transmitting the information corresponding to the frame concerned again. And the information corresponding to the frame with which the error was detected is again transmitted to the terminal unit with which carrier beam host equipment corresponds the resending demand from a terminal unit through means of communications.

[0011] Thus, since only the frame with which the error was detected can be again transmitted only to the terminal unit which the error generated through means of communications when an error occurs, compared with the case where it transmits again with a broadcast means, it is dramatically advantageous. As a system which realizes the information-transmission approach mentioned above, the configuration shown, for example in claim 2 can be considered. Namely, it connects through the broadcast means in which the simultaneous transmission of host equipment and a terminal unit is possible to many and unspecified persons, and the means of communications in which two-way communication is possible. It is an information transmission system for transmitting information to a terminal unit from host equipment. Host equipment An information-sharing means to divide the information which should be transmitted per fixed-length or variable-length frame, It has the 1st transmitting means which transmits the information divided by this information-sharing means to a terminal unit through a broadcast means. On the other hand, a terminal unit The 1st receiving means which receives the information transmitted through the broadcast means from host equipment, this — with an error detection means to detect an error in a frame unit out of the information received with the 1st receiving means A false information input means to input predetermined false information into the frame by which the error was detected with this error detection means, An information storage means to memorize the received information in the condition of having been inputted into false information with the false information input means, The identification information of a frame by which the error was detected with the error detection means is transmitted to host equipment

through means of communications. It has a resending demand means to require the information corresponding to the frame concerned as transmitting again. Further host equipment It has the 2nd transmitting means which transmits again the information on the frame notified to the terminal unit applicable to a carrier beam case in the resending demand through means of communications from a terminal unit. A terminal unit It is the information transmission system characterized by having the 2nd receiving means which receives the information on the frame resent from host equipment by the 2nd transmitting means.

[0012] The communication configuration which could consider the broadcast voice which used satellite communication as said broadcast means, and used the telephone network, the ISDN network, etc. as means of communications in which two-way communication is possible can be considered. In the case of the broadcast voice using satellite communication, since it has big channel capacity and the information on a large quantity can be simultaneously transmitted to two or more receiving sets, it is effective. However, for that purpose, as a receiving means, the parabolic antenna for reception etc. may be needed for the parabolic antenna for transmission, and each terminal unit as 1st transmitting means of host equipment, and it may be needed for the 1st, and it may become big in cost including the charge of utilization of a satellite etc. Therefore, although it is effective under the conditions of transmitting the information on a large quantity to many terminal units, if it becomes the situation of transmitting little information to a small number of terminal unit, as for transmission by this broadcast formula, a demerit will also increase.

[0013] So, in such a case, if only required information (that is, information which the error generated) is transmitted only to the terminal unit which the error generated using a telephone network, an ISDN network, etc. which were connected with each terminal unit, it is desirable rather than it performs transmission by the broadcast formula again. In this case, a modem etc. is enough as the 2nd transmitting means of host equipment, and 2nd receiving means of each terminal unit.

[0014] Thus, management when there is a reception error in a terminal unit is appropriately realizable, having an advantage of the simultaneous transmission of the mass information by the broadcast type by using together the simultaneous transmission to many and unspecified persons using a broadcast means, and the transmission which specified the transmitting partner according to the individual using means of communications.

[0015] In addition, in the terminal unit, when an error is detected, predetermined false information is inputted and memorized on the frame with which the error was detected. Therefore, when the information corresponding to the frame with which the error was detected is transmitted again, the location which should have essentially the information resent by existence of the above-mentioned false information is known.

[0016] In this case, you may make it the terminal unit further equipped with a resending information overwrite means to overwrite the applicable frame as which the information on the frame received with the 2nd receiving means was inputted into false information, as shown in claim 3. If it carries out like this, the information on the received frame can be overwritten suitable for the location which should exist essentially.

[0017] The host equipment used for such a system on the other hand can be constituted as follows. For example, the host equipment shown in claim 4 is connected with a terminal unit at many and unspecified persons through the broadcast means in which simultaneous transmission is possible, and the means of communications in which two-way communication is possible. An information-sharing means to divide the information which is host equipment which can transmit information and should be transmitted to the terminal unit concerned per fixed-length or variable-length frame, The 1st transmitting means which transmits the information divided by this information-sharing means to a terminal unit through a broadcast means, It is characterized by having the 2nd transmitting means which transmits the information on a specific frame to the terminal unit which corresponds the resending demand which specified the frame which should be resent from a terminal unit to a carrier beam case again through means of communications.

[0018] Moreover, the terminal unit used for such a system can be constituted as follows. For example, the terminal unit shown in claim 5 is connected with host equipment at many and unspecified persons through the broadcast means in which simultaneous transmission is possible, and the means of communications in which two-way communication is possible. The 1st receiving means which receives the information which is the terminal unit which can receive the information transmitted from host equipment, was divided per fixed-length or variable-length frame, and was transmitted through the broadcast means from host equipment, this — with an error detection means to detect an error in a frame unit out of the information received with the 1st receiving means A false information input means to input predetermined false information into the frame by which the error was detected with this error detection means, An information storage means to memorize the received information in the condition of having been inputted into false

information with the false information input means, A resending demand means to require that the identification information of a frame by which the error was detected with the error detection means should be transmitted to host equipment through means of communications, and the information corresponding to the frame concerned should be transmitted again, It is characterized by having the 2nd receiving means which receives the information transmitted through means of communications from host equipment.

[0019] And in this terminal unit, as shown in claim 6, it is good also as a configuration equipped with a resending information overwrite means to overwrite further the information on the frame received with the 2nd receiving means at the applicable frame inputted into false information. Since it was under explanation as the information-transmission approach mentioned above and a system and an operation and effectiveness of these host equipment and a terminal unit are described, it does not repeat here.

[0020] Of course, in realizing the information transmission system of this invention, it cannot be overemphasized that the thing using different equipment from the equipment of the example mentioned above when it is not restricted only to these host equipment and terminal units and its object, operation, and effectiveness were made common is also included.

[0021]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained with reference to a drawing. Drawing 1 is a block which shows the outline configuration of the information transmission system as 1 operation gestalt of this invention. This information transmission system consists of one host equipment 2 as "host equipment", and two or more terminal units 1 as a "terminal unit", and two kinds of information transmission of it, the "means of communications" through a public line 50 and the "broadcast means" through a satellite 30, is enabled. And when a public line 50 is minded, from host equipment 2, a terminal unit 1 can be specified and information transmission can be carried out. For example, if a public line 50 is the telephone line, it is realizable of connection with the desired terminal unit 1 by specifying and carrying out call origination of the telephone number of a terminal unit 1 from host equipment 2. On the other hand, when it minds a satellite 30, simultaneous transmission of the information can be carried out to many and unspecified terminal units 1 by the so-called broadcast type.

[0022] First, a terminal unit 1 is explained. Drawing 2 is the block diagram showing the internal configuration of a terminal unit 1. The modem 13 for a terminal unit 1 to perform host equipment 2 and data communication through a public line 50 as shown in drawing 2, RAM12 as a memory means used in order to store temporarily the data incorporated through the modem 13, It connected with the parabolic antenna 110 which receives the satellite broadcast wave broadcast through the satellite 30 from host equipment 2, and has the tuner 15 for separating the information multiplexed from the satellite broadcast wave, and the demodulator 14 which restores to the separated information. In addition, the information to which it restored with the demodulator 14 is memorized by HDD16 as a storage means. In addition, let the data memorized by this HDD16 be the image data compressed based on the MPEG 2 video coding method with this operation gestalt.

[0023] Moreover, the terminal unit 1 is equipped with the decoder 17 for in addition to this decoding the remote control light sensing portion 18 for receiving a request with the remote control 112 from a user, and the MPEG 2 data saved at HDD16. In addition, it enables it to carry out the display output of the image data decoded by the decoder 17 in CRT111 as a display means.

[0024] In addition, said modem 13 corresponds to "the 2nd receiving means", and said parabolic antenna 110, a tuner 15, and a demodulator 14 correspond to "the 1st receiving means." Moreover, although the information to which it restored with the demodulator 14 is memorized by HDD16 through CPU10, it is carrying out error detection in this case. With this operation gestalt, information is received per frame and this frame unit performs error detection. As the approach of error detection, for example, a check sum (Check Sum) method etc. is used. Moreover, false information is inputted into that error generating frame when an error is detected in this error detection. Therefore, CPU10 is equivalent to an "error detection means", a "false information input means", and a "resending demand means."

[0025] Then, host equipment 2 is explained. Drawing 3 is the block diagram showing the internal configuration of host equipment 2. The modem 23 for host equipment 2 to perform a terminal unit 1 and data communication through a public line 50, HDD26 as a storage means which has memorized the information which should be transmitted to a terminal unit 1, CPU20 as a control means which performs control of the whole equipment also including the processing which divides the information which should be transmitted per frame, ROM21 which has memorized the program which the CPU20 performs, It has RAM22 as a memory means, the transmission-control equipment 24 which performs control for transmitting said information divided per frame by the satellite circuit, and the modulator 25 which modulate the information and a satellite broadcast wave is made to multiplex. And the satellite broadcast wave modulated with the modulator 25 is transmitted to a satellite 30 with a parabolic antenna 210

[0026] In addition, CPU20 corresponds to a "information-sharing means." Moreover, said modem 23 corresponds to "the 2nd transmitting means", and said transmission-control equipment 24, a modulator 25, and a parabolic antenna 210 correspond to "the 1st transmitting means." Then, the structure of the information transmitted to a terminal unit 1 is explained with reference to drawing 4 from host equipment 2. As mentioned above, the information transmitted is divided per frame, and one of them consists of the offset address of top data, the serial number of a frame, the size of the data stored, a data name stored, data itself to distribute, and a check sum, as shown in drawing 4.

[0027] While transmitting to a terminal unit 1 by the satellite circuit from which the advantage of the simultaneous transmission of the mass data based on a broadcast type is acquired, about the information which the reception error generated, this information transmission system A terminal unit 1 is specified, and it is going to realize appropriately management when there is a reception error in a terminal unit, having an advantage of the simultaneous transmission of the mass information by the broadcast type by also specifying the information which should be transmitted and transmitting in a land-based line.

[0028] In this information transmission system, drawing 5 and the flow chart of 6 are also referred to and explained about the processing which starts an information transmission from host equipment 2 to a terminal unit 1. First, with reference to drawing 5, the information transmission-control processing in host equipment 2 is explained.

[0029] In the first step S11, the information which should be distributed to a terminal unit 1 is read from the inside of HDD26, and it divides per frame. This one divided frame becomes the structure shown in drawing 4. And in S12 continuing, the information for distribution on the frame unit divided by S11 is transmitted by the satellite circuit. In carrying out information transmission by the satellite circuit, information is transmitted to a modulator 25 through transmission-control equipment 24, the information is modulated with a modulator 25, and it multiplexes to a satellite broadcast wave. And the satellite broadcast wave modulated with the modulator 25 is transmitted to a satellite 30 with a parabolic antenna 210.

[0030] And in S13 continuing, it judges whether the error information from a terminal unit 1 was received. And when error information from a terminal unit 1 is not received, (S13:NO) and this routine are ended. However, to judge that error information was not received from a terminal unit 1 in this way, when predetermined time becomes progress, i.e., a time-out, not receiving error information after above-mentioned information transmission, consideration which it judges for the first time, "Did not receive" is required. The information transmitted from host equipment 2 is received by the terminal unit 1, and by the time a terminal unit 1 detects a reception error and transmits error information to host equipment 2, in order to require appropriate time amount, it is necessary to judge an above-mentioned time-out in consideration of such time amount.

[0031] On the other hand, when the error information from a terminal unit 1 is received, it shifts to (S13:YES) and S14, and based on the error information transmitted from the terminal unit 1, the information in the frame demanded from the terminal unit 1 side is transmitted. This is processing which transmits again only the information on a frame demanded only for the terminal unit 1 which has transmitted error information. And in this information retransmission of message, it transmits in a land-based line. That is, only the frame information which corresponds to the terminal unit 1 connected through the modem 23 and the public line 50 in this case is transmitted.

[0032] Next, with reference to drawing 6, the information reception in a terminal unit 1 is explained. In the first step S21, the information on the frame unit transmitted from host equipment 1 through a satellite circuit is received. Although the satellite broadcast wave by which subordination data were multiplexed is transmitted from a satellite 30, since this is a broadcast wave, simultaneous transmission of it will be carried out to many and unspecified terminal units 1. Therefore, if ready for receiving with a terminal unit 1, it receives suitably through a parabolic antenna 110, a tuner 15, and a demodulator 14, and the information on the frame unit to which it restored with the demodulator 14 is stored in HDD16.

[0033] Thus, in case information is received and stored per frame, it judges whether there was any reception error (S22). The existence of this reception error shifts to S24, when it has judged per frame and there was no reception error (S22:NO), it shifts to S23, it judges whether the reception of all information which should receive distribution was completed and reception is completed. And in S24, if it judges whether there is any information judged to be a reception error and there is nothing corresponding (S24:NO), this routine will be ended.

[0034] On the other hand, when there is a reception error, it shifts to (S22:YES) and S25, and the serial number of a frame with the reception error is stored in RAM12. And in S26 continuing, after inputting false information in a frame with the reception error, it shifts to processing of S21.

[0035] Therefore, when there is a reception error in this way, while the serial number of an applicable frame is memorized by RAM12, it will be stored in HDD16 where false information is inputted in the frame. And since affirmative judgment is carried out in decision of S24, it shifts to S27.



[0036] The receiving error information which specified the serial number of the frame of the part which the reception error memorized by RAM12 generated is transmitted to host equipment 2 in a land-based line in this case S27. That is, a terminal unit 1 transmits the receiving error information which specified the serial number, after connecting with host equipment 2 through a modem 13 and a public line 50.

[0037] When this processing of S27 is performed, in host equipment 2, it becomes affirmative judgment in the decision of drawing 5 of S13 which it means that had received the error information from a terminal unit 1 side, namely, was mentioned above. Therefore, the information corresponding to the frame of the serial number specified in receiving error information will be transmitted to a terminal unit 1 through a land-based line from host equipment 2 (S14 reference of drawing 5).

[0038] Therefore, with a terminal unit 1, the information corresponding to the reception error part transmitted from the host equipment 2 is received through a public line 50 and a modem 13 (S28), and the information corresponding to the reception error part is overwritten by S29 continuing at the corresponding frame. This will be overwritten at the part into which false information was inputted in above-mentioned S25.

[0039] After processing of S29 ends this routine. Actuation concerning the error management in the terminal unit 1 which performs such processing is again explained with reference to drawing 7. Drawing 7 shows the sequential operation of error management based on transmit information and receipt information.

[0040] As shown in [STEP1] and [STEP2] in drawing 7, in the terminal unit 1, sequential reception is carried out and the information transmitted is stored. As mentioned above, the information to receive is a frame unit and is performing the error judging with a check sum method for every frame unit of this. And as shown in [STEP3], when a reception error occurs, false information (in this case, "0000000") is inputted.

[0041] As shown in [STEP4], after informational reception and storing performed one by one are completed about all the information used as the object for distribution, as shown in [STEP5], the serial number of an error detection frame is transmitted to host equipment 2. And the information again transmitted from host equipment 2 as the result is received, and the corresponding frame is rewritten. Specifically, in rewriting to the frame which inputted false information "0000000" by above-mentioned [STEP3], the information "2567801" to which it retransmitted a message is overwritten. It can do, although a terminal unit 1 acquires the exact information distributed from host equipment 2 by this as shown in [STEP6].

[0042] Thus, in the information transmission system of this operation gestalt, since it has multiplexed and transmitted to the satellite broadcast wave by the satellite circuit first of all when transmitting data from host equipment 2 to a terminal unit 1, compared with the case where data are transmitted according to an individual to all the terminal units 1, the advantage of the simultaneous transmission of the mass data based on a broadcast type can be acquired. Therefore, one host equipment 2 is dramatically effective in the system which needs to transmit data to many terminal units 1.

[0043] However, the demerit distribution time amount and in respect of cost increases conversely as the count of transmission will increase if it transmits by the broadcast formula which used the satellite circuit again even when only the part of a series of information for distribution has a reception error in one terminal unit 1 for the property of the simultaneous transmission to wide range many and unspecified persons "broadcast" in the information transmission by the broadcast type.

[0044] This transmission approach is effective also about the retransmission of message at the time of such reception error generating. That is, it requires that the serial number of a frame which divides the information which host equipment 2 should distribute per frame, transmits by the broadcast formula through a satellite circuit, and detects an error per frame in the terminal unit 1 which received the information and by which the error was detected transmits to host equipment 2 through a land-based line, and the information corresponding to the frame which the error generated should transmit again. And the information corresponding to the frame with which the error was detected is again transmitted to the terminal unit 1 with which carrier beam host equipment 2 corresponds the resending demand from a terminal unit 1 through a land-based line.

[0045] Thus, since only the frame with which the error was detected can be again transmitted only to the terminal unit 1 which the error generated through a land-based line when an error occurs, compared with the case where it transmits again, it is dramatically advantageous by the broadcast formula by the satellite circuit.

[0046] Moreover, in the case of this operation gestalt, when an error is detected by the information received with the terminal unit 1, predetermined false information is inputted into the frame with which the error was detected, and it is memorizing. Therefore, if the information to which the applicable frame into which the above-mentioned false information was inputted retransmitted a message is overwritten when the information corresponding to the frame with which the error was detected is again transmitted from host equipment 2, the information on the received frame can be overwritten suitable for the location which

should exist essentially.

[0047] As mentioned above, this invention is not limited to such an example at all, and can be carried out with the gestalt which becomes various in the range which does not deviate from the main point of this invention. For example, although to transmit predetermined information from host equipment 2, with the connection condition continued will be waited in the above-mentioned operation gestalt after transmitting the receiving error information which carried out call origination from the terminal unit 1, made connection with host equipment 2, and specified the serial number when a reception error occurs with a terminal unit 1, you may once cut. That is, after transmitting the receiving error information which specified the serial number as host equipment 2 from the terminal unit 1, connection with host equipment 2 is once interrupted. And when host equipment 2 transmits predetermined information, from host equipment 2, call origination of the terminal unit 1 is carried out, it connects, and predetermined information is transmitted after that.

[0048] thus, the improvement in a response when many terminal units 1 with the need of many terminal units 1 existing in a system, and uploading receiving error information to host equipment 2 are generated is thought as an advantage to carry out. If it is made to perform upload of receiving error information, and retransmission of message of the information corresponding to it by the set every one terminal unit 2, what cannot perform connection with host equipment 1 easily into the terminal unit 1 to be uploaded to host equipment 2 will come out. To it, in the case of the approach of once cutting connection if only upload of the receiving error information to host equipment 2 is performed, the time amount which each terminal unit 1 has connected becomes short relatively, and the terminal unit 1 to be communicated with host equipment 2 can access now into a certain amount of time amount.

[0049] Having transmitted information to the terminal unit 1 by the broadcast formula from host equipment 2 will have received the almost same information as a coincidence term with many terminal units 1, and it becomes what also has the near stage which a reception error will occur and will need to upload the receiving error information. Therefore, since an opportunity to upload this receiving error information is considered as it is better to secure as early as possible, it can be said to be desirable [ this approach ] at that point.

[0050] In addition, in the above-mentioned operation gestalt, although the data transmission by the satellite circuit using a satellite 30 was taken for the example, even if it is data transmission of the broadcast type by the ground wave which does not use such a satellite 30, the same effectiveness is acquired.

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[Translation done.]

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**TECHNICAL FIELD**

[Field of the Invention] This invention is used for the approach and system which transmit information to a terminal unit from host equipment, and its system, and relates to effective host equipment and an effective terminal unit.

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**EFFECT OF THE INVENTION**

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[The means for solving a technical problem and an effect of the invention] The information-transmission approach of this invention made in order to attain the above-mentioned object In the information transmission system connected through the broadcast means in which the simultaneous transmission of host equipment and a terminal unit is possible to many and unspecified persons, and the means of communications in which two-way communication is possible so that it may indicate to claim 1 It is the approach of transmitting information to a terminal unit from host equipment. With host equipment In the terminal unit which transmitted to the terminal unit through the broadcast means after dividing the information which should be transmitted per fixed-length or variable-length frame, and received the transmitted information While memorizing the information received where predetermined false information is inputted into the frame with which the error was detected per frame and the error was detected The identification information of a frame by which the error was detected is transmitted to host equipment through means of communications, and the information corresponding to the frame concerned is required as transmitting again. The resending demand carrier beam host equipment According to this information-transmission approach characterized by transmitting again the information corresponding to the frame with which the error was detected through means of communications to the corresponding terminal unit After dividing the information which host equipment should transmit per fixed-length or variable-length frame, it transmits to a terminal unit through the broadcast means in which simultaneous transmission is possible at many and unspecified persons. And the terminal unit which received the transmitted information memorizes the information received where predetermined false information is inputted into the frame with which the error was detected per frame and the error was detected. A terminal unit is required as transmitting the identification information of a frame by which the error was detected to host equipment through the means of communications in which two-way communication is possible, and transmitting the information corresponding to the frame concerned again with it. The information corresponding to the frame with which the error was detected is again transmitted to the terminal unit with which carrier beam host equipment corresponds the resending demand from the terminal unit through means of communications.

[0008] Thus, since the transmission which minds a broadcast means first is used when transmitting information from host equipment to a terminal unit, compared with the case where information is transmitted according to an individual to all terminal units, the advantage of the simultaneous transmission of the mass information by the broadcast type can be acquired. Therefore, it is dramatically effective when one host equipment needs to transmit information to many terminal units especially.

[0009] However, the demerit distribution time amount and in respect of cost increases conversely as the count of transmission will increase, if in the information transmission by the broadcast type it transmits with a broadcast means again even when only the part of a series of information has a reception error with one terminal unit for the property of the simultaneous transmission to wide range many and unspecified persons "broadcast", as mentioned above.

[0010] This transmission approach is effective also about the retransmission of message at the time of such reception error generating. That is, the terminal unit which received the information which the information which host equipment should transmit is divided per fixed-length or variable-length frame, and was transmitted with the broadcast means is required as transmitting the identification information of a frame which detects an error per frame and by which the error was detected to host equipment through means of communications, and transmitting the information corresponding to the frame concerned again. And the information corresponding to the frame with which the error was detected is again transmitted to the terminal unit with which carrier beam host equipment corresponds the resending demand from a terminal unit through means of communications.

[0011] Thus, since only the frame with which the error was detected can be again transmitted only to the terminal unit which the error generated through means of communications when an error occurs, compared

system which realizes the information-transmission approach mentioned above, the configuration shown, for example in claim 2 can be considered. Namely, it connects through the broadcast means in which the simultaneous transmission of host equipment and a terminal unit is possible to many and unspecified persons, and the means of communications in which two-way communication is possible. It is an information transmission system for transmitting information to a terminal unit from host equipment. Host equipment An information-sharing means to divide the information which should be transmitted per fixed-length or variable-length frame, It has the 1st transmitting means which transmits the information divided by this information-sharing means to a terminal unit through a broadcast means. On the other hand, a terminal unit The 1st receiving means which receives the information transmitted through the broadcast means from host equipment, this — with an error detection means to detect an error in a frame unit out of the information received with the 1st receiving means A false information input means to input predetermined false information into the frame by which the error was detected with this error detection means, An information storage means to memorize the received information in the condition of having been inputted into false information with the false information input means, The identification information of a frame by which the error was detected with the error detection means is transmitted to host equipment through means of communications. It has a resending demand means to require the information corresponding to the frame concerned as transmitting again. Further host equipment It has the 2nd transmitting means which transmits again the information on the frame notified to the terminal unit applicable to a carrier beam case in the resending demand through means of communications from a terminal unit. A terminal unit It is the information transmission system characterized by having the 2nd receiving means which receives the information on the frame resent from host equipment by the 2nd transmitting means.

[0012] The communication configuration which could consider the broadcast voice which used satellite communication as said broadcast means, and used the telephone network, the ISDN network, etc. as means of communications in which two-way communication is possible can be considered. In the case of the broadcast voice using satellite communication, since it has big channel capacity and the information on a large quantity can be simultaneously transmitted to two or more receiving sets, it is effective. However, for that purpose, as a receiving means, the parabolic antenna for reception etc. may be needed for the parabolic antenna for transmission, and each terminal unit as 1st transmitting means of host equipment, and it may be needed for the 1st, and it may become big in cost including the charge of utilization of a satellite etc. Therefore, although it is effective under the conditions of transmitting the information on a large quantity to many terminal units, if it becomes the situation of transmitting little information to a small number of terminal unit, as for transmission by this broadcast formula, a demerit will also increase.

[0013] So, in such a case, if only required information (that is, information which the error generated) is transmitted only to the terminal unit which the error generated using a telephone network, an ISDN network, etc. which were connected with each terminal unit, it is desirable rather than it performs transmission by the broadcast formula again. In this case, a modem etc. is enough as the 2nd transmitting means of host equipment, and 2nd receiving means of each terminal unit.

[0014] Thus, management when there is a reception error in a terminal unit is appropriately realizable, having an advantage of the simultaneous transmission of the mass information by the broadcast type by using together the simultaneous transmission to many and unspecified persons using a broadcast means, and the transmission which specified the transmitting partner according to the individual using means of communications.

[0015] In addition, in the terminal unit, when an error is detected, predetermined false information is inputted and memorized on the frame with which the error was detected. Therefore, when the information corresponding to the frame with which the error was detected is transmitted again, the location which should have essentially the information resent by existence of the above-mentioned false information is known.

[0016] In this case, you may make it the terminal unit further equipped with a resending information overwrite means to overwrite the applicable frame as which the information on the frame received with the 2nd receiving means was inputted into false information, as shown in claim 3. If it carries out like this, the information on the received frame can be overwritten suitable for the location which should exist essentially.

[0017] The host equipment used for such a system on the other hand can be constituted as follows. For example, the host equipment shown in claim 4 is connected with a terminal unit at many and unspecified persons through the broadcast means in which simultaneous transmission is possible, and the means of communications in which two-way communication is possible. An information-sharing means to divide the information which is host equipment which can transmit information and should be transmitted to the terminal unit concerned per fixed-length or variable-length frame. The 1st transmitting means which

transmits the information divided by this information-sharing means to a terminal unit through a broadcast means. It is characterized by having the 2nd transmitting means which transmits the information on a specific frame to the terminal unit which corresponds the resending demand which specified the frame which should be resent from a terminal unit to a carrier beam case again through means of communications.

[0018] Moreover, the terminal unit used for such a system can be constituted as follows. For example, the terminal unit shown in claim 5 is connected with host equipment at many and unspecified persons through the broadcast means in which simultaneous transmission is possible, and the means of communications in which two-way communication is possible. The 1st receiving means which receives the information which is the terminal unit which can receive the information transmitted from host equipment, was divided per fixed-length or variable-length frame, and was transmitted through the broadcast means from host equipment, this — with an error detection means to detect an error in a frame unit out of the information received with the 1st receiving means A false information input means to input predetermined false information into the frame by which the error was detected with this error detection means, An information storage means to memorize the received information in the condition of having been inputted into false information with the false information input means, A resending demand means to require that the identification information of a frame by which the error was detected with the error detection means should be transmitted to host equipment through means of communications, and the information corresponding to the frame concerned should be transmitted again, It is characterized by having the 2nd receiving means which receives the information transmitted through means of communications from host equipment.

[0019] And in this terminal unit, as shown in claim 6, it is good also as a configuration equipped with a resending information overwrite means to overwrite further the information on the frame received with the 2nd receiving means at the applicable frame inputted into false information. Since it was under explanation as the information-transmission approach mentioned above and a system and an operation and effectiveness of these host equipment and a terminal unit are described, it does not repeat here.

[0020] Of course, in realizing the information transmission system of this invention, it cannot be overemphasized that the thing using different equipment from the equipment of the example mentioned above when it is not restricted only to these host equipment and terminal units and its object, operation, and effectiveness were made common is also included.

[0021]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained with reference to a drawing. Drawing 1 is a block which shows the outline configuration of the information transmission system as 1 operation gestalt of this invention. This information transmission system consists of one host equipment 2 as "host equipment", and two or more terminal units 1 as a "terminal unit", and minds a public line 50.

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[Translation done.]

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**TECHNICAL PROBLEM**

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[Description of the Prior Art] Conventionally, it set to the information distribution system which distributed the information for service provisions required for the service provision performed in a terminal unit from host equipment, and was connected by the communication line in which the information transmission of both directions [ terminal unit / host equipment and ], such as the telephone line, is possible, and information was transmitted from both sides through this communication line. From host equipment, information for service provisions mentioned above was distributed (download), and predetermined information, such as operation information, was uploaded from the terminal unit to host equipment. [0003] However, in an information distribution system by which the new information for service provisions is distributed at comparatively short spacing, since the time amount concerning information distribution became long and communication link cost would also increase the more the more the number of the terminal units belonging to a system increases, desire of the cost reduction as whole shortening and the whole system of distribution time amount was carried out. For example, like the so-called online karaoke system, when the information on a new song needs to be distributed to each terminal unit every several days, the count distributed from host equipment increases dramatically, and especially desire is carried out.

[0004] On the other hand, although the information transmission by the broadcast type for example, using a communication link/broadcasting satellite occurs, since this has big channel capacity and can transmit information simultaneously to two or more receiving sets, it is desirable to above-mentioned distribution time amount compaction. However, when the information transmission by such broadcast type is adopted, there is also a demerit on account of [ which is called the simultaneous transmission to wide range many and unspecified persons "broadcast" ] a property. For example, although it will transmit again if an informational reception error occurs with a certain terminal unit, even when only the part of a series of information has a reception error with one terminal unit, all a series of information will be again transmitted by the broadcast formula.

[0005] In respect of the time amount which one transmission takes, or cost, information transmission of a broadcast type Since there is not necessarily a merit [ the information using the communication line mentioned above / especially ], for example, it ends with one transmission also to 1000 terminal units, When transmitting to each terminal unit like [ at the time of using a communication line ] that is, I hear that there is a merit as the whole system compared with 1000 transmitting processings being need, and it is. Therefore, the demerit distribution time amount and in respect of cost increases conversely as the count of transmission will increase if all a series of information will be again transmitted by the broadcast formula even when only the part of a series of information has a reception error in reverse with one terminal unit.

[0006] This invention aims at offering the host equipment and the terminal unit which are used for the system and this system for realizing the information-transmission approach for realizing appropriately management when there is a reception error in a terminal unit, and its transmission approach, having [ are made in order to solve the trouble mentioned above, and ] an advantage of the simultaneous transmission of the mass information by the broadcast type.

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**MEANS**

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"Means of communications" and a satellite 30 are minded.

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**DESCRIPTION OF DRAWINGS**

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**[Brief Description of the Drawings]**

**[Drawing 1]** It is the block diagram showing the outline configuration of the information transmission system of an operation gestalt.

**[Drawing 2]** It is the block diagram showing the configuration of the terminal unit of an operation gestalt.

**[Drawing 3]** It is the block diagram showing the configuration of the host equipment in an operation gestalt.

**[Drawing 4]** It is the explanatory view of the DS of the information on the frame unit transmitted to a terminal unit from the host equipment of an operation gestalt.

**[Drawing 5]** It is the flow chart which shows actuation concerning the transmission control performed in the host equipment of an operation gestalt.

**[Drawing 6]** It is the flow chart which shows actuation concerning the reception control performed in the terminal unit of an operation gestalt.

**[Drawing 7]** It is the explanatory view showing outline progress of the error management actuation in the terminal unit of an operation gestalt.

**[Description of Notations]**

1 — Terminal unit 2 — Host equipment

13 — Modem 14 — Demodulator

15 — Tuner 16 — HDD

23 — Modem 24 — Transmission-control equipment

25 — Modulator 26 — HDD

30 — Satellite 50 — Public line

110 — Parabolic antenna 210 — Parabolic antenna

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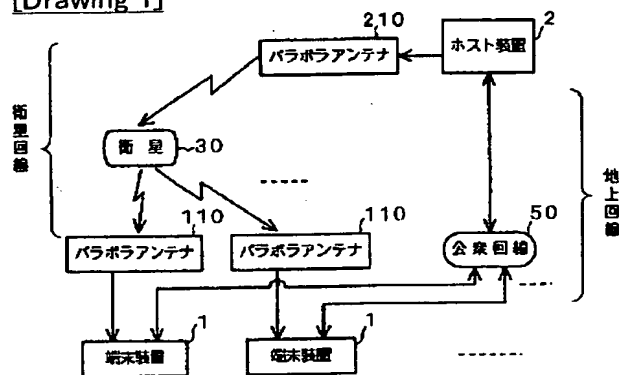
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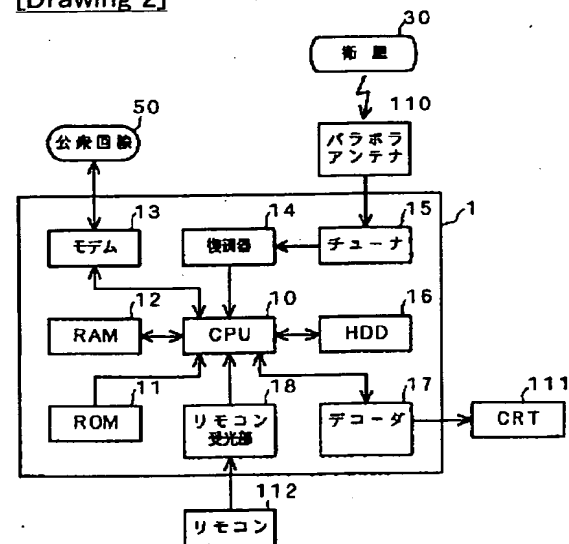
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DRAWINGS

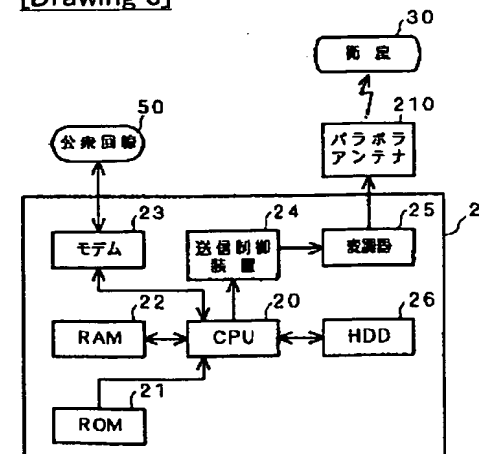
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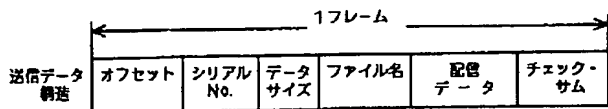


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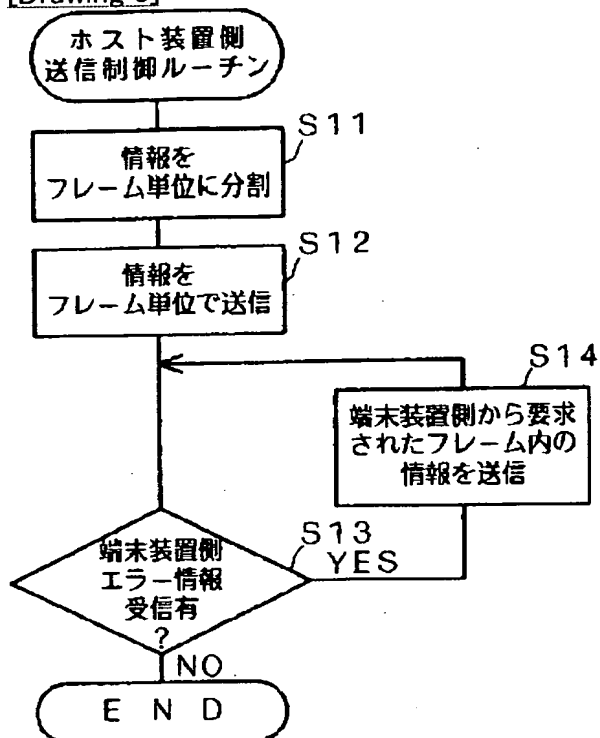


[Drawing 3]

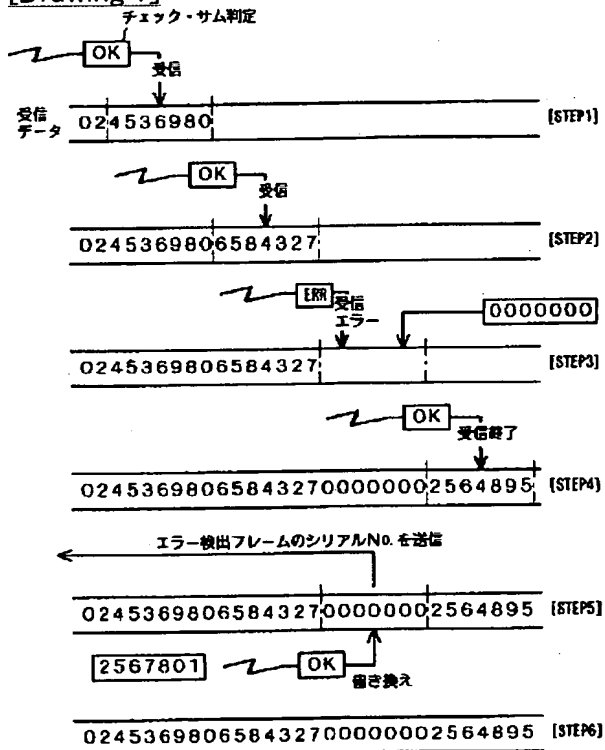




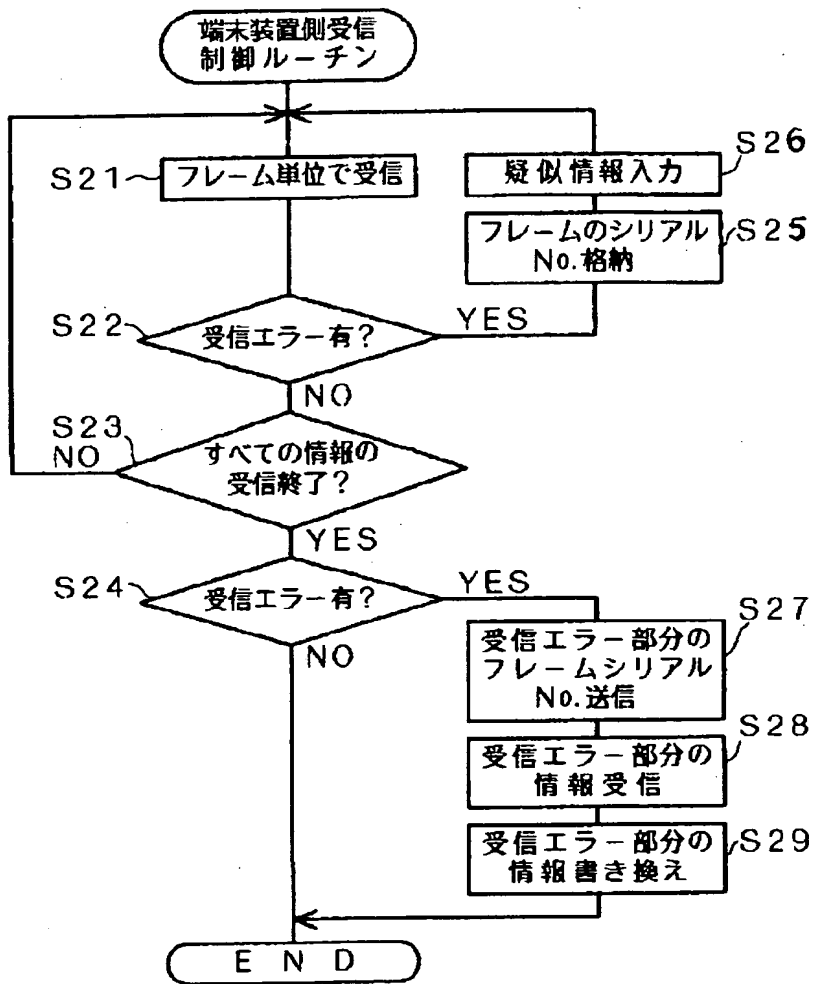
[Drawing 5]



[Drawing 7]



[Drawing 6]



[Translation done.]